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**PART P  
STEEL ERECTION**

**WAC 296-155-700 General requirements.**

- (1) Erection gangs on structural steel erection shall work under the direction of experienced crew leader.
- (2) Workers shall not ride on steel being hoisted, nor slide down ropes, columns or ladders.
- (3) Wire rope slings shall be used when lifting loads. Care shall be taken to avoid sharp bends by using wood or similar type padding between wire rope and load. Reinforcing steel shall not be lifted by bundling ties.
- (4) If float scaffolds are used during steel erection, they shall be used in accordance with WAC 296-155-484(19).

[Statutory Authority: Chapter 49.17.010, .040, .050, .060 RCW. 98-05-046 (Order 97-10), § 296-155-700, filed 2/13/98, effective 4/15/98. Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-155-700, filed 7/20/94, effective 9/20/94; 91-03-044 (Order 90-18), 296-155-700, filed 1/10/91, effective 2/12/91. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-700, filed 1/21/86; Order 76-29, § 296-155-700, filed 9/30/76; Order 74-26, § 296-155-700, filed 5/7/74, effective 6/6/74.]

**WAC 296-155-705 Flooring requirements.**

- (1) Permanent flooring-Skeleton steel construction in tiered buildings.
  - (a) The permanent floors shall be installed as the erection of structural members progresses, and there shall be not more than eight stories between the erection floor and the uppermost permanent floor, except where the structural integrity is maintained as a result of the design.
  - (b) At no time shall there be more than four floors or 48 feet of unfinished bolting or welding above the foundation or uppermost permanently secured floor.
- (2) Temporary flooring-Skeleton steel construction in tiered buildings.
  - (a)
    - (i) The derrick or erection floor shall be solidly planked or decked over its entire surface except for access openings. Planking or decking of equivalent strength, shall be of proper thickness to carry the working load. Planking shall be not less than 2 inches thick full size undressed, and shall be laid tight and secured to prevent movement.
    - (ii) On buildings or structures not adaptable to temporary floors, and where scaffolds are not used, safety nets shall be installed and maintained whenever the potential fall distance exceeds 10 feet. The nets shall be hung with sufficient clearance to prevent contacts with the surface of structures below.
    - (iii) Floor periphery - safety railing. A standard railing including midrail of 1/2-inch wire rope or equivalent shall be installed at the periphery (including all floor openings) of all temporary-planked or temporary metal-decked floors of tier buildings and other multi-floored structures during structural steel assembly.
  - (b)
    - (i) Where skeleton steel erection is being done, a tightly planked and substantial floor shall be maintained within two stories or twenty-five feet, whichever is less, below and directly under that portion of each tier of beams on which any work is being performed, except when gathering and stacking temporary floor planks on a lower floor, in preparation for transferring such planks for use on an upper floor. Where such a floor is not practicable, subsection (2)(a)(ii) of this section applies.

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**WAC 296-155-705 (Cont.)**

- (ii) When gathering and stacking temporary floor planks, the planks shall be removed successively, working toward the last panel of the temporary floor so that the work is always done from the planked floor.
- (3) Flooring - other construction.
  - (a) In the erection of a building having double wood floor construction, the rough flooring shall be completed as the building progresses, including the tier below the one on which floor joists are being installed.
  - (b) For single wood floor or other flooring systems, the floor immediately below the story where the floor joists are being installed shall be kept planked or decked over.

[Statutory Authority: Chapter 49.17 RCW. 91-03-044 (Order 90-18), § 296-155-705, filed 1/10/91, effective 2/12/91. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-705, filed 1/21/86; Order 76-29, § 296-155-705, filed 9/30/76; Order 74-26, § 296-155-705, filed 5/7/74, effective 6/6/74.]

**WAC 296-155-710 Structural steel assembly.**

- (1) During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with not less than two bolts, or the equivalent at each connection and drawn up wrench tight.
- (2) Open web steel joists shall not be placed on any structural steel framework unless such framework is safely bolted or welded.
- (3)
  - (a) In steel framing, where bar joists are utilized, and columns are not framed in at least two directions with structural steel members, a bar joist shall be field-bolted at columns to provide lateral stability during construction.
  - (b) Where longspan joists or trusses, 40 feet or longer, are used, a center row of bolted bridging shall be installed to provide lateral stability during construction prior to slacking of hoisting line.
  - (c) No load shall be placed on open web steel joists until these security requirements are met.

- (4) Tag lines shall be used for controlling loads.

[Order 74-26, § 296-155-710, filed 5/7/74, effective 6/6/74.]

**WAC 296-155-715 Bolting, riveting, fitting-up, and plumbing-up.**

- (1) General requirements.
  - (a) Containers shall be provided for storing or carrying rivets, bolts, and drift pins, and secured against accidental displacement when aloft.
  - (b) Pneumatic hand tools shall be disconnected from the power source, and pressure in hose lines shall be released, before any adjustments or repairs are made.
  - (c) Air line hose sections shall be tied together except when quick disconnect couplers are used to join sections.
  - (d) Eye protection shall be provided in accordance with Part C of this chapter.

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**WAC 296-155-715 (Cont.)**

- (2) Bolting.
  - (a) When bolts or drift pins are being knocked out, means shall be provided to keep them from falling.
  - (b) Impact wrenches shall be provided with a locking device for retaining the socket.
- (3) Riveting.
  - (a) Riveting shall not be done in the vicinity of combustible material unless precautions are taken to prevent fire.
  - (b) When workers are below and rivet heads are knocked off or backed out, means shall be provided to keep the rivet heads from falling on such workers.
  - (c) A safety wire shall be properly installed on the snap and on the handle of the pneumatic riveting hammer and shall be used at all times. The wire size shall be not less than No. 9 (B & S gauge), leaving the handle and annealed No. 14 on the snap or equivalent.
  - (d) The rivet heating equipment shall be kept as near as possible to the riveting gang with whom the rivet heater is working.
  - (e) Hot rivets shall never be thrown across shaftways or towards the outside of a building.
  - (f) When riveting is done on an outside wall, the rivets shall be passed by hand or thrown parallel to the wall.
  - (g) Metal cone shaped buckets shall be used for catching hot rivets.
  - (h) Riveters shall avoid allowing the air hose to become wrapped or tangled around their legs.
  - (i) Empty bolt and rivet kegs shall be removed from the floor as soon as possible.
  - (j) Pails and hand lines shall be used when raising or lowering bolts, rivets or small tools.
  - (k) The nozzle of the riveting gun shall be periodically inspected and the wire attachment not allowed to become worn so as to permit the nozzle to fly out with the air pressure.
  - (l) Electric welding equipment shall not be used where wire rope is used to suspend scaffolds.
- (4) Plumbing-up.
  - (a) Connections of the equipment used in plumbing-up shall be properly secured.
  - (b) The turnbuckles shall be secured to prevent unwinding while under stress.
  - (c) Plumbing-up guys related equipment shall be placed so that employees can get at the connection points.

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**WAC 296-155-715 (Cont.)**

- (d) Plumbing-up guys shall be removed only under the supervision of a competent person.
- (5) Wood planking shall be of proper thickness to carry the working load, but shall be not less than 2 inches thick full size undressed, exterior grade plywood, at least 3/4-inch thick, or equivalent material.
- (6) Metal decking of sufficient strength shall be laid tight and secured to prevent movement.
- (7) Planks shall overlap the bearing on each end by a minimum of 12 inches.
- (8) Wire mesh, exterior plywood, or equivalent, shall be used around columns where planks do not fit tightly.
- (9) Provisions shall be made to secure temporary flooring against displacement.
- (10) All unused openings in floors, temporary or permanent, shall be completely planked over or guarded in accordance with Part K of this chapter.
- (11) Temporary bracing and/or guying shall be utilized to stabilize a structure until construction has been completed.
- (12) Employees shall use safety belts in accordance with Part C-1 of this chapter when they are working on float scaffolds.

[Statutory Authority: Chapter 49.17 RCW. 96-24-051, (Order 96-05), § 296-155-715, filed 11/27/96, effective 02/01/97. 95-10-016, § 296-155-715, filed 4/25/95, effective 10/1/95; 94-15-096 (Order 94-07), § 296-155-715, filed 7/20/94, effective 9/20/94; Order 76-29, § 296-155-715, filed 9/30/76; Order 74-26, § 296-155-715, filed 5/7/74, effective 6/6/74.]

**WAC 296-155-720 Safe walking surfaces on structural members.** Structural members with studs, dowels or shear connectors installed on the top side shall not be used as a walkway and/or means of access unless such studs, dowels or shear connectors are covered with suitable material and in such a manner as to provide a walking surface at least as stable and free of hazards as the top surface of the member would provide without attachments installed. For the purpose of this section, “stud,” shall mean all protruding metal attachments to structural members.

[Statutory Authority: Chapter 49.17 RCW. 91-03-044 (Order 90-18), § 296-155-720, filed 1/10/91, effective 2/12/91. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-074 (Order 86-14), § 296-155-720, filed 1/21/86; Order 74-26, § 296-155-720, filed 5/7/74, effective 6/6/74.]